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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/344,629	06/25/1999	YASUKI RAI	2933SE-83	9273

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SHERIDAN ROSS PC
1560 BROADWAY
SUITE 1200
DENVER, CO 80202

EXAMINER

AWAD, AMR A

ART UNIT	PAPER NUMBER
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2675

DATE MAILED: 09/30/2002

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Please find below and/or attached an Office communication concerning this application or proceeding.

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Office Action Summary

Application No.
09/344,629

Applicant(s)
RAI et al.

Examiner
Amr Awad

Art Unit
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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on Jul 25, 2002.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 3-5, 7-12, 16-19, and 22-31 is/are pending in the application.
- 4a) Of the above, claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 8-12 and 22-29 is/are allowed.
- 6) ☒ Claim(s) 3-5, 7, 16-19, 30, and 31 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- *See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s). _____
- ☐ Interview Summary (PTO-413) Paper No(s). _____
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other:

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DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 3, 7, and 16-17 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 3, 7 and 16-17 all recite the limitation “a light receiving device substantially countering an optical path of the ambient light collected by the light collector and illuminating a rear surface of the liquid crystal display panel.....”. The language of the claims indicates that the light receiving device *is illuminating a rear surface* of the liquid crystal. However, neither the specification nor the Applicant’s remarks teach or suggest such limitation, thus the claim renders indefinite. It is the light collector however, the element which is responsible for illumination of the rear surface of the liquid crystal display. A correction or clarification is respectfully requested by the Examiner. For the purpose of examining the claims on the merit, examiner will assume that the Applicant’s intention is to indicate that the illuminating of the rear of the liquid crystal display is carried out by the light collector.

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Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 3-5, 7, 16-19 and 30-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant Admitted Prior Art (figures 1-2 and its related text; hereinafter referred to as APA) in view of Helms (US patent NO. 5,952,992) in view of Kubo et al. (US patent NO. 6,195,140; hereinafter referred to as Kubo).

As to claim 3, APA (figure 2) teaches a liquid crystal display that includes a liquid crystal display panel (100) having a predetermined display characteristic (APA referred to the predetermined display characteristic as predetermined brightness; see top of page 2), a luminescent unit located adjacent to the liquid crystal display panel, wherein the luminescent unit includes a light collector (115) which collects ambient light, and a light source (114); see specification, pages 1-2. APA teaches that the collected ambient light is used as a backlight of the liquid crystal display; see page 3, second paragraph. APA also teaches that the ambient light is collected in the rear of the liquid crystal display (page 3, lines 5-9 of applicant's specification).

APA does not teach a control circuit electrically connected to the liquid crystal display panel, wherein the control circuit varies the predetermined display characteristic in accordance with the amount of collected ambient light. APA does not expressly teach light receiving device

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substantially countering the ambient light directed to the collector to detect the amount of ambient light collected by the light collector.

However, Helms teaches a method and apparatus for automatically adjusting the brightness level of an LCD based on the ambient lighting conditions (abstract). Helms (figure 2) teaches a brightness control circuitry (204) wherein a microprocessor (204a) is electrically connected to backlight driver circuitry for generating brightness control signals ; see column 3, lines 19-34. Helms (figure 3) teaches that the ambient light signal is used to index the automatic brightness level signal look up table to change the brightness level (predetermined display characteristic); see column 4, lines 1-32.

Helms specifically discloses “lowering the brightness level of and LCD during use in low ambient lighting conditions”, (column 2, lines 38-39) which means that in case of high ambient lighting conditions, the brightness level of the LCD will increase. This disclosure by Helms substantially equivalent to the newly added limitation “light receiving device substantially countering the ambient light”. In other word, Helms countering the effect of the ambient light by automatically changing the brightness of the LCD based on the ambient conditions.

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to include Helms’s teaching of having a control unit to change the brightness level (predetermined display characteristic) according to the ambient light to be incorporated to APA’s device so as motivated by Helms, to have an intelligent LCD brightness control system which automatically adjusts to the ambient lighting conditions of the environment

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in which the PC is being used; see column 2, lines 3-6. Furthermore, the brightness level adjustment automatically, without user intervention, thereby reducing the possibility of user error; see column 2, lines 42-46.

It would have been also obvious to a person of ordinary skill in the art at the time the invention was made to include the teaching of Helms of countering the ambient light to be incorporated to APA's device so as motivated by Helms, a user could take advantage by decreasing the brightness level of the LCD whenever ambient lighting conditions permit (dark room) and then subsequently increasing the brightness level only when necessary; see column 1, lines 49-55.

The two references are combinable because, APA teaches the idea of collecting the ambient light which can be used as a backlight. Helms would be incorporated to APA to control the brightness of the LCD according to the detected ambient light. In an alternative way, Helms teaches having a control system that receives the ambient light and controls the brightness of the LCD according to the received ambient light. APA further enhance Helms by not only sensing the ambient light, but also collecting it to be used in the backlight.

APA and Helms do not expressly teach that the characteristic includes transmittance, and shifting a predetermined voltage range in accordance with the amount of collected ambient light to change the minimum transmittance.

However, Kubo teaches a liquid crystal display device that includes transmission and reflection regions (abstract). Kubo teaches varying the applied voltage to the liquid crystal display

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in accordance to the transmitted light of ambient light; see column 12, lines 29-36. Kubo also teaches that the transmittance of the display varies in accordance to the detected ambient light; see column 15, lines 39-47.

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to include the teaching of Kubo of having a liquid crystal display device having the voltage and the transmittance varied in accordance to the detected ambient light to be incorporated to APA's modified device so as motivated by Kubo, to have a uniform contrast even if the amount of transmitted ambient light significantly varies.

As to claims 4-5, as discussed above with respect to claim 3, Kubo teaches that the applied voltage would be changes in accordance to the ambient light; see column 12, lines 29-36.

As to claim 7, the claim is very similar to independent claim 3 and is analyzed as previously discussed with respect to independent claim 3.

As to claims 16 and 17, the discussion of claim 1 applies to claims 16 and 17. Furthermore, APA (figure 1) teaches first and second substrates (101 & 104), a liquid crystal layer (107) arranged between the first and the second substrates, a seal portion and a display area of the liquid crystal display panel; see the specification page 1. Helms teaches having the light receiver (photodetector 14') at the top side of the liquid crystal display panel (as can be seen in figure 4, the light receiver 14' is fairly at a side of the liquid crystal display).

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Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to have the light receiver on top of the substrate, as seen in Helms' device so that the ambient light can be easily received by the light receiver.

As to claims 18-19 APA and Helms do not specifically teach that the characteristic includes transmittance, the control circuit changing the minimum transmittance in accordance with the amount of the collected ambient light. As seen above with respect to claim 3, Kubo teaches changing the transmittance in accordance to the amount of collected light.

As to claim 30, as discussed above with respect to claim 3, Kubo teaches changing the transmittance in accordance to the light amount signal.

As to claim 31, Kubo teaches effecting the contrast of the liquid crystal based on the ambient light; see column 12, lines 29-36.

Allowable Subject Matter

5. Claims 8-12 and 22-29 are allowed.

Response to Arguments

6. Applicant's arguments filed July 25, 2002 have been fully considered but they are not persuasive.

Applicant (bottom of page 6) argued that neither APA reference, the Kubo, or the Helms reference, alone or in combination, disclose a light receiving device substantially countering an

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optical path of the ambient light by the light collector and illuminating the rear surface of the liquid crystal display panel. Examiner respectfully disagrees. As discussed above in the rejection under 112- second paragraph, The language of the claims indicates that the light receiving device *is illuminating a rear surface* of the liquid crystal. However, neither the specification nor the Applicant's remarks teach or suggest such limitation, thus the claim renders indefinite. It is the light collector however, the element which is responsible for illumination of the rear surface of the liquid crystal display. For the purpose of examining the claims on the merit, examiner will assume that the Applicant's intention is to indicate that the illuminating of the rear of the liquid crystal display is carried out by the light collector. Using examiner's assumption that the illumination of the rear surface is carried out by the light collector, APA as discussed in the rejection above, shows that the light collector causes the illumination of the rear surface of the liquid crystal device.

Applicant (top of page 7) argued that Helms does not teach whether the ambient light could be collected from the rear surface of the LCD. However, examiner asserts that the APA shows collecting the ambient light in the rear surface of the liquid crystal display.

Applicant (top of page 8) argued that claim 16 has been amended such that the light receiving device is arranged at the side of the liquid crystal display panel. However, as discussed in the rejection above, Helms shows the light receiving (14') is located in the top part of the LCD panel which fairly reads on the limitation of having the light receiver at a side of the liquid crystal panel.

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Conclusion

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Amr Awad whose telephone number is (703) 308-8485.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven Saras, can be reached on (703) 305-9720.

9. **Any response to final this action should be mailed to:**

Commissioner of Patents and Trademarks

Washington, D.C. 20231

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or faxed to:

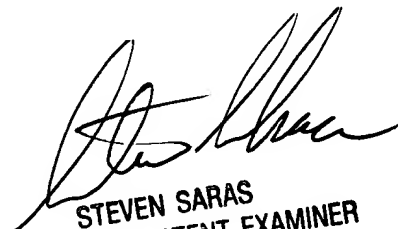
(703) 872-9314 (for Technology Center 2600 only)

*Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive,
Arlington, VA., Sixth Floor (Receptionist).*

Any inquiry of general nature or relating to the status of this application or proceeding should be directed to Technology center 2600 Customer Service Office whose telephone number is (703) 306-0377.

A.A

September 27, 2002.


STEVEN SARAS
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600